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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,516	12/16/2008	Walter Keith Jones	91830.0542770	7508

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EXAMINER	
SHEN, WU CHENG WINSTON	
ART UNIT	PAPER NUMBER
1632	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,516	JONES, WALTER KEITH	
	Examiner	Art Unit	
	WU-CHENG Winston SHEN	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) 1-29 are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-29 are pending in the instant application and are subject to restriction in this office action. Claim 25 is interpreted as a dependent claim of claim 17, instead of a dependent claim of claim 11 as written. Amendments of claim 25 different from this interpretation will subject the claim to further Election/Restrictions.

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions, which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

I. Claims 1 and 4-7, drawn to a concatemerized double-stranded oligonucleotide molecule comprising at least two copies of a nucleotide sequence comprising a sequence or sequences that act as transcription factor decoys.

II. Claim 2, drawn to a transcription factor decoy comprising concatemerized double-stranded oligonucleotide molecule at least two end-to-end repeated copies of a nucleotide sequence comprising a sequence or sequences that act as transcription factor decoys.

III. Claim 3, drawn to a combinatorial transcription factor decoy comprising concatemedzed double-stranded oligonucleotide molecule at least two end-to-end

nucleotide sequence comprising two different sequences that act as transcription factor decoys for 2 or more transcription factors.

IV. Claims 8-10 (in part pertaining to *in vitro*), drawn to a method of delivering transcription factor decoys *in vitro*, in isolated cells, comprising concatemerized double-stranded oligonucleotide molecule at least two end-to-end repeated copies of a nucleotide sequence comprising a sequence or sequences that act as transcription factor decoys.

V. Claims 8-10 (in part pertaining to *in vivo*), drawn to a method of delivering transcription factor decoys *in vivo*, in intact animals, comprising concatemerized double-stranded oligonucleotide molecule at least two end-to-end repeated copies of a nucleotide sequence comprising a sequence or sequences that act as transcription factor decoys.

VI. Claims 11-16 and 26-28, drawn to a method for treatment of NF-κB-associated diseases which comprises administering to an animal an effective amount of a polynucleotide NF-κB chromosomal binding site decoy which antagonizes NF-κB-mediated transcription of a gene located downstream of a NF-κB binding site wherein the polynucleotide comprises one or more copy of the oligonucleotide decoy.

VII. Claims 17-25, drawn to a method of treating a nuclear factor κB-dependent disease selected from the group consisting of immunological disorders, septic shock, transplant rejection, radiation damage, reperfusion injuries after ischemia, arteriosclerosis and neurodegenerative diseases, comprising administering to a mammal in need of such treatment an effective amount of an oligonucleotide t decoy.

VIII. Claim 29, drawn to a therapeutic method comprising treating non-aortal procedural vascular trauma comprising administering to a mammal, subjected to the procedural vascular trauma, an effective protective amount of an oligonucleotide decoy, or a pharmaceutically acceptable salt thereof.

Claims of Groups V-VII are subjected to <u>further restrictions</u> as elaborated below.

(A) Groups V, claims 8-10, are further restricted as follows:

(a) Claim 9 is further restricted to (i) a disease, (ii) a response to surgery, (iii) trauma, (iv) developmental defects, (v) aging, (vi) toxic exposure.

Each genus of diseases, response, trauma, defects, aging, and toxic exposures listed in (i) to (vi) is patentable distinct invention one from the other because each genus encompasses various group of diseases, response, trauma, defects, aging, and toxic exposures with distinct underlying causes and characteristics. This is <u>not</u> an election of species.

(b) Claim 10 is further restricted to a specific genus of diseases selected from (i) myocardial ischemia/reperfusion and myocardial infarction, (ii) heart failure and hypertrophy, (iii) cardioprotection, (iv) stroke, (v) neuroprotection, (vi) sepsis, (vii) arthritis, (viii) asthma, (ix) heritable inflammatory disorders, (x) cancer, (xi) heritable immune dysfunctions, (xii) inflammatory processes caused by a disease, (xiii) inflammatory processes caused by an injury , (xiv) inflammatory processes caused by an infection, (xv) inflammatory processes caused by an oxidative stress, (xvi) inflammatory processes caused by a surgery, and (xvii) inflammatory processes caused by an injury.

Each genus of diseases listed in (i) to (xvii) is patentable distinct invention one from the other because each genus of diseases encompasses various group of diseases with distinct underlying causes and potential treatments. This is <u>not</u> an election of species.

(B) Groups VI, claims 11-16 and 26-28, are further restricted as follows:

Claims 12-16 are further restricted to a specific genus of diseases selected from (i) an ischemic disease (recited in claims 12 and 13), (ii) an inflammatory disease (recited in claim 12), (iii) an autoimmune disease (recited in claim 12), (iv) a reperfusion disorder in ischemic disease (recited in claims 14 and 15), (v) aggravation of a prognosis of an organ transplantation (recited in claim 14), (vi) aggravation of a prognosis of an organ surgery (recited in claims 14 and 15), (vii) a post-PTCA restinosis (recited in claims 14 and 15), (viii) a cancer metastasis a cancer invasion (recited in claim 16), and (ix) cachexia (recited in claim 16).

Each genus of diseases listed in (i) to (ix) is patentable distinct invention one from the other because each genus of diseases encompasses various group of diseases with distinct underlying causes and potential treatments. This is not an election of species.

(C) Groups VII, claims 17-25, are further restricted as follows:

Claims 17-25 are further restricted to a specific genus of diseases selected from (i) immunological disorders (recited in claims 17 and 19), (ii) septic shock (recited in claims 17 and 20), (iii) transplant rejection (recited in claims 17 and 21), (iv) radiation damage (recited in claims 17 and 22), (v) reperfusion injuries after ischemia (recited in claims 17 and 23), (vi) arteriosclerosis (recited in claims 17 and 24), and (vii) neurodegenerative diseases (recited in claims 17 and 25).

Each genus of diseases listed in (i) to (vii) is patentable distinct invention one from the other because each genus of diseases encompasses various group of diseases with distinct underlying causes and potential treatments. This is not an election of species.

2. The inventions listed of Groups I-VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Applicant's claims encompass multiple inventions, multiple products (Groups I-III) with distinct characteristics in terms of identity and orientation of oligonucleotide sequences, multiple methods (Groups IV-VIII) with distinct goals, methods steps for distinct groups of diseases under consideration, and do not have a special technical feature which link the inventions one to the other, and lack unity of invention. The common technical feature in Groups I-VIII is as stated in claim 1 regarding a concatemerized double-stranded oligonucleotide molecule comprising at least two copies of a nucleotide sequence comprising a sequence or sequences that act as transcription factor decoys. However, this common technical feature cannot be a special technical feature under PCT Rule 13.2 because the feature is shown in the prior art. For instance, **Tomita et al.** teaches that transfection of *cis*-element double-stranded oligonucleotides (decoy ODNs) has been reported as a new powerful tool in a new class of anti-gene strategies for gene therapy. Transfection of double-stranded ODN corresponding to the *cis* sequence will result in attenuation of the authentic *cis*-trans interaction, leading to removal of trans-factors from the endogenous *cis*-elements with subsequent modulation of gene expression (See abstract, Tomita et al., Potential therapeutic applications of decoy oligonucleotides, *Curr Opin Mol Ther.* 4(2):166-70, 2002). Tomita et al. teaches that decoy ONDs have been used in variety of forms, ranging from short sequences of 10 to 20 base pairs in length to plasmid DNA containing *multiple repeats of a consensus sequence* (See introduction, Tomita et al., *Curr Opin Mol Ther.* 4(2):166-70, 2002).

3. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Claims 26-28 recites inhibition of cell death and apoptosis in various diseased tissues: (i) inhibiting cell death and apoptosis in ischemic-reperfused myocardium (recited in claim 26), (ii) inhibiting apoptosis in ischemic-reperfused brain (recited in claim 27), (iii) reducing neuronal cell death in stroke (recited in claim 27), (iv) inhibiting apoptosis in the failing heart (recited in claim 28), and (v) reducing apoptosis cell death in congestive heart failure(recited in claim 28), and (vi) reducing apoptosis cell death in cardiomyopathy (recited in claim 28). These various inhibitions of cell death and apoptosis in various diseased tissues are different species because each diseased tissue has specific structure and function and underlying causes of the diseases of the tissue.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election. It is noted that the election of species must be consistent with the election of invention (i.e. restriction).

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the

limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

MPEP 1893.03(d) Unity of Invention Rejoinder

4. MPEP 1893.03(d) states: If an examiner (1) determines that the claims lack unity of invention and (2) requires election of a single invention, when all of the claims drawn to the elected invention are allowable (i.e., meet the requirements of 35 U.S.C. 101, 102, 103 and 112), the nonelected invention(s) should be considered for rejoinder. Any nonelected product claim that requires all the limitations of an allowable product claim, and any nonelected process claim that requires all the limitations of an allowable process claim, should be rejoined. See MPEP § 821.04 and § 821.04(a). Any nonelected processes of making and/or using an allowable product should be considered for rejoinder following the practice set forth in MPEP § 821.04(b).

5. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in

the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention or species.

Should applicant traverse on the ground that the inventions have unity of invention (37 CFR 1.475(a)), applicant must provide reasons in support thereof. Applicant may submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. Where such evidence or admission is provided by applicant, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication from the examiner should be directed to Wu-Cheng Winston Shen whose telephone number is (571) 272-3157 and Fax number is 571-273-3157. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the supervisory patent examiner, Peter Paras, Jr. can be reached on (571) 272-4517. The fax number for TC 1600 is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wu-Cheng Winston Shen/
Primary Examiner
Art Unit 1632